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Final Report

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Preface

The Report which follows this prefatory note is another in a growing series of significant documents which underline the important work of the C.A.U.T. and the commitment of its members to its broad purposes. It represents the kind of study which university problems must receive before policy can be properly formulated — an examination of ascertainable facts set against the role of universities in our society; an appraisal of the pros and cons of the problem under discussion in the light of known experience; a disclosure of the sources of information brought to bear upon it.

"Year-Round Operation of Universities" can be a mischievous if not misleading catch-phrase. It is proof enough of this that a leading proponent of "year-round operations" finds the concept satisfied by a minimum 40-week academic year, and hence is, by this fact, closer to the position of an opponent who believes in a 32-week academic term than he is to a supporter who takes the phrase literally. The phrase carries a reproach which is unjustified even in its literal application so far at least as concerns science research. It can produce confusion in members of the public by blurring the distinction between the availability of the physical resources of a University (including library materials) on a 52-week basis and the availability of a full programme of studies over the calendar year with a consequent commitment of staff and students to that programme. Unexplained and unexplored, it begs the question of what a University is and what is the relation of the teaching staff to its operation.

The manner in which the Report reproduced below has dealt with "year-round operation" as an academic value (from which financial considerations cannot, of course, be divorced) should serve to rid it both of sting and opprobrium, and to place discussion on the proper plane of concern that Universities should operate with maximum effectiveness in their dedication (to use the words of the Report) "to the service and satisfaction of the intellect". I commend the Report to the members of the C.A.U.T. and to other readers of the *Bulletin* and invite comments on it. Presently, it remains a Committee Report which has been received by the Council of the C.A.U.T., but in receiving it the Council has instructed the Executive and Finance Committee to formulate and issue a statement of C.A.U.T. policy. This is now under consideration.

Bora Laskin
President, C.A.U.T.

Committee On Year-Round Operation of Universities

Final Report

PART ONE: INTRODUCTION

The Committee responsible for this report did not interpret its function as that of replying to the arguments that have been advanced for the adoption of a year-round program by Canadian universities. It considered its job to be the examination of the idea of year-round operation and the practical effects of it where it is being carried on. Since changes in the operation of a university, as in any other organization, ought presumably to be determined by the ultimate end in view, the Committee began, and this report begins, by discussing the aims and functions of the modern university and some of its special problems. In the light of this discussion, the report proceeds with an examination of year-round operation in theory and practice and makes a variety of comments. The comments do not, however, lead to either proscription or prescription; the Committee held that its function was to enlighten, not to exhort.

In making its study, the Committee consulted, by letter or interview, scores of faculty members and administrative officers in fifty-one American and sixteen Canadian universities, as well as reading widely in the existing literature. Members of the Committee visited nine American universities at which, in varying forms, year-round programs are being carried on. It is not possible to acknowledge here all the help received; indeed, since many of the persons who provided it asked that they should not be named, the Committee has felt it best to preserve anonymity throughout, while here recording its thanks. Three exceptions to the rule of anonymity must be made: Professor Eugene LeMire, of the University of Windsor, supplied an invaluable basic bibliography[1], and Professors R. W. Thompson and D. W. Carment, of McMaster University, gave special advice about financial and psychological matters. The fruits of Dr. Thompson's work constitute the appendix to the report.

Aims and Functions of Universities

The university is dedicated to the service and satisfaction of the intellect. It is the nature of the intellect to want to know the truth. Therefore the university pursues a disinterested search for knowledge as a means towards the truth. This is the function of the university known as "research", and it includes not only investigation such as the scientist conducts in his laboratory, or the historian among manuscripts and artifacts, or the sociologist among living societies of

[1]Published in the C.A.U.T. *Bulletin*, XII (December, 1963), 39-46. Readers of this Report should consult Professor LeMire's bibliography for additional information.

men, but also the meditation of the philosopher in his study, the critical reappraisal that the humanist gives to a work of literature, or, indeed, the reflection, reading and writing that any scholar expends on his subject. (It is important to point out that, except where more specific meaning is evident from the context, it is in this broad sense that the word "research" will be used throughout this report.) But in order that knowledge may not be lost, and so that the search for truth may proceed, the university also attempts to pass on the results of its research. This is its teaching function; but it must be understood that "teaching" here does not mean simply the transmission of a number of given facts, a body of knowledge, from one who knows to one who does not: rather the university seeks not only to make available to the student what is known, but also to put at his command the means of knowing, and to give him some guidance in their use. For he must learn first how to know, and what knowing means, before he can come to know for himself. The most valuable thing the professor can give the student is not his knowledge, but his experience in the ways of knowledge — the ability to find it and to appreciate its value. The process that relates teaching to learning at the university is therefore not simple but highly complex. It cannot be exactly described nor is it susceptible to regular systemization, but it is continuous from the first undergraduate year until the end of the student's university career.

Two things should be noted about these two main functions of the university: research and teaching. In the first place they are interdependent; for, without teaching, both the results of research and the methods of research would be lost: and without research, the pursuit of knowledge would come to a stop, and teaching could do no more than pass on a burnt-out torch from generation to generation. And what is true of the university is true, of course, of the individual faculty member: if he cannot pursue research in the widest sense of the word, which includes not only investigation but also meditation, reading and writing, then he will become a mere purveyor of dead information; and if he does not teach, the immediate value that his research might have for graduate students and undergraduates will be lost.

In the second place, it should be noted that all the other functions that are assigned to a university in our present society depend on these first two. These secondary functions include the training of men for various professions, such as medicine, engineering, law, etc., and the provision of expert advice on practical matters pertaining to the community and to national and international affairs. The university also makes available adult education in both formal and informal ways. It provides a neutral setting for debates on controversial issues. Its faculty and its library are likely to be used as "cultural resources" by any community, and, especially in the smaller communities, it is called on to serve as a cultural centre, and to give active encouragement to the arts. Yet all these services are demanded of the university because it is what it is, because it is dedicated to the task of both seeking the truth and attempting to proclaim it. In our society the university is unique. No other institution has as its function the combined pursuit and dissemination of knowledge at its highest level, and no other institution has a function more essential for the maintenance and enrichment of our way of life. It would seem reasonable therefore to examine very carefully what is essential to the functioning of the university as we know it before attempting any alterations designed to improve its "efficiency".

Pressures on the Universities

There is much concern among Canadian faculty members about the problem of increasing numbers and a general readiness to take any measures that seem consistent with maintaining at least the standards of education that now exist in our universities. But faculty members mistrust any view that sees the problem merely as one of numbers and costs, and any scheme that intends the reorganization of universities on those considerations alone. Much that has been written and spoken publicly in advocacy of year-round operation has done little to reassure and a great deal to increase the anxiety of those who understand the universities and who have at heart their best interests as servants of society.

The problem of numbers is complicated by another, more elusive, problem that is reflected in the public demand for university places for the young. This demand is not always made in full awareness of what a university education is intended to be; too often it seems to be little more than a demand that young people be allowed to pass through a process that will certify them as superior members of society, and allow them to make larger demands for positions and salary. It sometimes appears that universities are being used by society as agencies to pre-sort the young into those who are capable of taking certain positions and those who are not, and are consequently asked to admit many who are not ready or able fully to participate in the university's approach to knowledge. The problem is an elusive one because, while such views of the chief function of a university are inadequate, it is nevertheless true that many young people who go to universities for the wrong reasons still benefit from the universities' true function. The universities would not want to be rid of them; they even recognize that the certification and sorting have some validity and are of some use to society. In fact, they will want to take in all those who can truly benefit from what they have to offer, and will welcome any scheme that allows them to extend their services as a genuine demand for those services increases.

But those services can only be offered by the university if it is permitted to preserve its primary functions of research and teaching. And about these dual functions it should be noted that each must be directed in the first place at what may be called the upper limits. The research of the university must always attempt to go beyond the limits of man's present knowledge and insights, and its teaching must always take as its standard the developing of our best minds to their fullest potential.

It is for this reason that the faculty is apprehensive of numbers unless there is assurance that any scheme to deal with them will also safeguard the ability of the university to carry out its primary functions. For the dead weight of numbers alone can have two results that at best would be unhappy, and at worst would destroy the university as we know it and value it: they can use faculty energy and occupy faculty time in teaching to the point where research is neglected or even abandoned, and reduce teaching itself to the desperate job of trying to inform. When this happens, not only are the best minds neglected by the only institution designed to serve their needs, but the others are offered an inferior service: for even second-rate students will benefit more from first-rate teaching than from second-rate. The cost to society of such deterioration of the university would be formidable. There is no reason to believe that our present method of

operation works perfectly; but there is no reason to believe that a change designed solely to make it possible to admit more students will be an improvement. Unless it is carried through with scrupulous care for what is good in the system we have, any major reorganization may well result in deterioration of the services that we have come to expect from the universities.

The Problem of Adaptation

Existing university programmes represent not only an accumulation of wisdom and good intentions from the past, but also enormous outlays in energy, talent, time and money. They are complex systems that have evolved to meet the demands, not only of the various Departments, Faculties and professional Schools, but also of the graduate courses, the pre-professional courses, and the undergraduate courses at both the three-year "Pass" and the four-year "Honours" level. Like anything human they are susceptible of improvement, but they are also not invulnerable to the destructive activity of fools. Any change is costly, and misdirected change is ruinously costly. Therefore, it is as much the responsibility of faculty to oppose costly and unjustified change as it is to recommend and assist change that is justified. And it may be suggested, although many might not agree, that if human ingenuity cannot find a way to extend the services of the universities without reducing their quality, then it is better to educate the top ten per cent of the population to the best of our ability than to provide an inferior education for the top twenty per cent.

But this report is not a document of despair. Instead it is intended to suggest that a way may be found not only to extend to greater numbers the services of the universities, but also to improve those services, provided that the problem is attacked with the intention of increasing the quality as well as the quantity of university graduates.

If any scheme of change does not preserve those things that are essential to the universities' performance of their primary functions, it must be abandoned as ruinous; if it merely preserves those things without improving their effectiveness or extending the services of the university, it must be abandoned as pointless; if, while preserving them, it improves their effectiveness or extends the services of the university, it should be adopted; if it does all three things, it may be welcomed as a miracle.

Conditions of the Academic Life

The university can perform its principal function only if conditions essential to the most fruitful academic life are maintained for both faculty and students. Briefly, for the faculty member this means the time, resources and atmosphere for the research upon which his development and the quality of his teaching depend. It means a sizeable period free from teaching in each calendar year, and an academic year where the teaching schedule leaves time for reading, meditation and recreation; it means libraries and laboratories, and grants-in-aid for travel and fieldwork; finally, it means a sufficient salary to allow the faculty member to live as a family man with reasonable comfort and without undue financial worry. For the student it means time for study, resources for study, and circumstances conducive to study. Broken down, this means a schedule of classes that leaves

room for reading and thinking and other means of individual development, and does not put a premium on lecture notes, outline studies, or other aids to cramming for examinations; it also means an opportunity for meetings with his instructors and his fellow students; and it means a total atmosphere where knowledge can be pursued not indolently but nevertheless with a sense that the demands made upon him are first those of knowledge and only secondly those of time, and where the stimulus of the community emphasizes not only the acquisition of knowledge but its value as well, where knowledge and the means of acquiring it are matters for intellectual excitement and satisfaction, not for boredom and intellectual drudgery.

Our present system fails to provide these conditions fully. Faculty members are frequently over-loaded with numbers and courses in their teaching, and undernourished in the things necessary to their own development; students are frequently bedevilled with numbers of courses. over-loaded with lecture hours and driven to cramming rather than to intellectual development. But at its best the present system tries to approximate the ideal; the ills can be cured. and certainly nothing short of this present imperfection would be tolerable.

It is in the light of the foregoing statement concerning academic ideals that we now consider the device of year-round operation and the conditions with which it is commonly put into effect.

PART TWO: YEAR-ROUND OPERATION EXAMINED

Points in Favour of Year-Round Operation

Year-round operation is described by David C. Webb in the following way:

> . . . an institution is considered to be operating the year-round when it offers a full schedule of *regular* daytime academic courses leading to a degree, over a period of not less than forty weeks in any calendar year. The forty or more weeks may be divided into three or more terms, which may or may not be equal in length, but in which the courses are of equal credit value[2].

Advocates of year-round operation usually base their arguments for its advantages not so much on studies of concrete institutions where the system has been established, as on the analysis of abstract models of institutions whose academic years are divided into equal and identical blocks. In such analyses, numerical values are given to the factors which enter into the equations measuring input and output, factors such as freshmen enrolled, graduates produced, units of facilities used, units of instruction, and so on — in short those factors which can be measured. Using these techniques it is not difficult to demonstrate the many advantages of year-round operation and, in particular, of the trimester system. For instance, it can be shown that, given equal student participation in each block of time, there are spectacular gains in efficiency and economy; that larger numbers of undergraduates can be accommodated by the plant; that large numbers of students can accelerate and complete their studies in a comparatively short time. It can be shown also that, under ideal conditions, there is greater flexibility for faculty than there is in conventional systems, for instance in permitting them to choose between winter and summer terms for research. It can be shown that division of the year into equal blocks eliminates the unequal weighting of fall and spring courses found in many conventional institutions[3].

In theory, then, significant gains can be expected under a system of year-round operation. Their magnitude shrinks, however, when one considers the real world and observes how many of the "factors" assumed to behave rationally and predictably in the analytical models respond to pressures and motives not considered in the models. Perhaps such "interferences" with the working of the model might be considered temporary hindrances which, over a period of years or even generations, might be overcome. However, in this report, we focus on the real world of the present and near future, asking "What is happening?"

The Canadian Situation

At the typical Canadian university, only undergraduate instruction is *not* year-round. The following academic activities *are* year-round: post-graduate teaching and direction of graduate studies; extension activity; research, writing, and other scholarly activity. During the so-called vacation of four months, the majority of undergraduates take on summer jobs, in most cases to finance their

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[2]*Year-Round Operation of Universities and Colleges* (Montreal: Canadian Foundation for Educational Development, 1963), p. 14.

[3]For the clearest statements of the theoretical gains resulting from year-round operations, and particularly of the trimester system, see: Webb, *op. cit.*, p. 27; Elmer C. Easton, *Year-Around Operation of Colleges*, Engineering Research Bulletin Number 41 (New Brunswick, N.J.: Rutgers, The State University, College of Engineering, 1958), p. 36; Nelson Associates, *Increasing College Capacity by Calendar Revision* (Albany: State University of New York, 1961), p. 28.

education. The seasonal employment situation in Canada, quite different from that in much of the U.S.A., makes it unlikely that as large numbers can get employment at other times of the year. Faculty members, graduate students and some undergraduate students engage in research and study, not necessarily carried on in the context of their home universities, but nevertheless directly related to their academic roles.

At the undergraduate level only a few Canadian universities have launched year-round programmes, although one new university, Simon Fraser, is due to open this year with a trimester system and several others are examining the possibilities of year-round operation. The University of Waterloo is in its third year of a Co-operative Year-Round programme in engineering, and is experimenting on a small scale with such a programme in science. However, because its year-round programme is tied to its co-operative system, it represents a rather unique experiment with limited application in the rest of the country. Similarly, Collège Saint Denis, one of Quebec's classical colleges, has launched a year-round programme, but because of the rather untypical and highly structured programme of these undergraduate colleges the lessons to be learned from their experiences have limited applicability to the majority of Canadian universities. Thus, there is not much Canadian *experience* with year-round undergraduate schemes to report on. Nevertheless, it is possible to make logical predictions about the probable effects on Canadian universities of year-round schemes such as the trimester system, and it is important to cite the opinions of individuals and study groups in Canadian universities who corresponded with the Committee.

The Financial Situation

In current discussion of the implications of population pressure for our universities cost is an important factor: academic advantages and disadvantages of year-round operation must be considered in relation to the *magnitude* of projected financial losses or gains. The committee therefore asked Dr. R. W. Thompson, Associate Professor of Economics at McMaster University, to prepare for us an estimate of the financial gains to be expected from the most economical scheme of year-round undergraduate teaching[4]. This scheme is a modified trimester plan in which, during the summer, only the more junior courses are given, courses in which the average enrolment is largest and which can therefore be provided at the lowest per capita cost. Deliberately, other assumptions have been made as favourable as possible to year-round operation. For instance, summer enrolment is estimated to be 50 per cent of fall term enrolment, an extremely optimistic projection.

This approach to the analysis has been chosen because, in the absence of any feasible method of predicting actual costs, the best alternative is to establish a limiting figure, on one side of which the true cost figure will almost certainly remain. The study indicates that the maximum saving to Canada of a national modified trimester system introduced in the early 1970's could not be more than $40,000,000 per year.

Translated into per capita terms, the annual saving on current operating expenses, plus that on interest and depreciation, would not exceed $110 per student per year, or, in relative terms, some 4½ per cent of the total cost per

[4]See Appendix.

student of providing a year's university education. However, as Dr. Thompson points out, the American experience to be discussed in the following section suggests a much lower rate of saving and perhaps none at all.

Canadian faculty members who corresponded with us generally felt that even such an unspectacular saving as the maximum suggested by Dr. Thompson would justify the introduction of year-round operation, provided that the non-monetary disadvantages did not outweigh the monetary gains. Most were apprehensive about the probable compression and fragmentation of courses, the increase in frequency of examinations, possible undue rewarding of faculty for taking on more undergraduate teaching at the expense of other academic pursuits, and the emergence and hardening of a distinction between two "classes" of faculty — the teachers and the others. Many safeguards against these and other dangers, should year-round operation be established, were suggested: as, for example,

(a) that no year-round programme be introduced without faculty participation during the early stages of planning and without careful replanning of curriculum well in advance of the inauguration of the programme;
(b) that a faculty member be appointed, his salary to be paid by the appropriate government, to supervise the implementation of a programme for his institution and that a standing committee of faculty keep a watching brief on the developing programme;
(c) that there be no increase in faculty teaching loads when averaged over, say, a two-year period, and that the usual 12-month appointment be patterned in terms of two trimesters of teaching and one of research or other scholarly activities;
(d) that compensation for faculty be in the form of time off from teaching rather than extra salary for additional teaching;
(e) that the ratio of students to staff over the full year must not be increased as a result of the adoption of year-round operation;
(f) that there be a considerable increase in bursaries and scholarships so that no student will be prevented for financial reasons from attending university in any semester he wishes.

There is no evidence that large numbers of Canadian faculty members are enthusiastic supporters of year-round operation. On the other hand, it does not appear that they regard the present, conventional system as sacred and immutable. It was suggested by several individuals and by three committees representing large universities that fuller use of plant can be achieved by adding from two to four weeks to the existing session and by expanding existing summer programmes without, however, making the summer equivalent to the other terms. Proponents of this view argued that the extra weeks in course could be devoted to student tutorials, reading, and study, the quality of university education being thus improved. However, such measures would not contribute to the handling of larger numbers of students with existing facilities as year-round operation is intended to do.

In the next section, the heart of this report, we attempt to evaluate the experience of certain American universities which have adopted year-round programmes with this intention.

PART THREE: EXPERIENCE WITH YEAR-ROUND OPERATION IN THE UNITED STATES

Introduction

The following is an attempt to summarize and comment upon what has been learned by members of the committee about the experience that American universities have had with various systems of year-round operation[5]. We have confined ourselves for the most part to trying to discover whether, in the American universities where systems of year-round operation have been attempted, advantages have in fact accrued, and in what measure, and what have been the effects on faculty, on students, and on academic work in general.

As mentioned earlier, we have tried to present the evidence and opinion as objectively as possible, but since the C.A.U.T. is a body of professional academics, we have stressed matters and problems of academic interest. We are not ourselves wedded to the present way of doing things in our universities. We know that it has many weaknesses, and would welcome the opportunity for a change that would make it possible to do better the things we are committed to doing. By the same token we would oppose a proposed change that involved doing those things less well. And it is not arrogance but professional integrity that leads us to believe that in matters which concern the education of students in a university, faculty members are best qualified to say what is good and what is bad.

Mechanics of Year-Round Operation

The purpose of year-round operation of a university is to lengthen the period of instruction in each calendar year to something more nearly commensurate with the calendar year so that, without extending a given physical plant, the university can:

(a) within any calendar year offer the equivalent of a full regular academic year of the present length to a larger number of students;

(b) allow some students to take in the calendar year more courses than are obtainable in the present academic year, and in that way to shorten the period necessary to acquire a degree.

The universities in the U.S.A. visited by members of the committee had attempted to lengthen the period of academic training within the calendar year in various ways. Some had added a third semester to their existing two in order to provide a trimester or three-term system; some had turned a three-quarter system into a four-quarter system; others had increased the length of their normal summer-school period so that for their regular students it would be roughly commensurate in length with the standard periods of their academic year; one had transformed a semester system into a four-term system by making three terms

[5]To obtain this information, members of the Committee visited American universities which had established year-round systems, interviewing administrators, faculty, and students in the following institutions: Wayne State University, Detroit, Michigan; Michigan State University, East Lansing, Michigan; State University of Pennsylvania, University Park, Pennsylvania; University of Pittsburgh, Pittsburgh, Pennsylvania; University of North Carolina, Chapel Hill, N.C.; University of Georgia, Athens, Georgia; Georgia Institute of Technology, Atlanta, Georgia; University of Florida, Gainesville, Florida; Vanderbilt University, Nashville, Tennessee.

roughly equal to the previous two semesters and leaving the fourth term for increased capacity and acceleration. But in general each had attempted to achieve year-round operation by adding an extra period to the existing system, and whatever was thought of as the academic year in the original system was still thought of as the regular academic year, with the added period available for acceleration and as a receptacle for increased enrolment. In short, the new system has been thought of less as a transformation of the old than as an extension of it in time. To the best of our observation, the changes that have been made in the methods and procedures of academic instruction have been made to accommodate the new schedule. While it can be said that many of these adjustments were attempts to prevent the deterioration of academic values that existed in the previous system, it is also fair to say that, with a few exceptions, it was only to that extent that academic interests were considered. Since the whole process was one of adapting the old methods to a new time-schedule for purposes of acceleration and increased capacity, those two ends were paramount. There seems to have been little attempt to put academic interests first and, by examining the old system for its academic weaknesses and using the necessity for change as an opportunity to correct them, to improve the whole process of university education while attempting to increase the capacity of the university and to provide opportunities for student acceleration. Acceleration and increased capacity are valuable only in so far as a university education itself has value: to diminish the latter in the interests of the former is no service to society. The problem seems to have been approached from the wrong end; if it was enlightened and progressive to work for increased capacity and the means for acceleration, it was unenlightened and unprogressive to assume that the best way to achieve those ends was simply to do things in the traditional way but to do them faster and more often within the calendar year. The old methods were geared in a familiar ratio to the time alloted for their use, and their strengths and weaknesses were related to that ratio. To change the lengths of the customary sessions without completely re-thinking and altering the customary methods might work certain haphazard improvements, it was almost certain also to produce dislocations that might be patched up but could not be fully repaired. What was best in the old system might well have been used as the basis to construct a new system that would allow for increased capacity and acceleration; what was weak in the old system might have been avoided in the construction of the new. But this would have been possible only if these academic strengths and weaknesses had been primary considerations in planning the change, with the desirable but secondary ends of increased capacity and the potential for acceleration achieved by adjustment to them.

Cost of Year-Round Operation

Understandably enough, the cost has been a primary consideration in the attempts at year-round operation in the United States. This has sometimes meant political and other pressures, for it would seem in theory to be true that if you can educate x number of students in two terms, you can educate x plus ½x number of students in three terms without enlarging the physical plant, or with only a minimal enlargement. But this depends on being able to use the physical plant to equal capacity in each of the three terms, and this in turn depends on student A attending in terms one and two, on student B attending in terms one and three, and on student C attending in terms two and three. To date this

pattern has not worked out because of a marked reluctance on the part of students to attend in the extra term[6]. During that term, faculty have been required to teach reduced classes, and buildings not used to capacity have had to be maintained as buildings in use. As a result the cost per unit of instruction has been relatively very high in the extra term, not only obliterating any savings that might have been contemplated, but also increasing the overall cost of instruction per unit throughout the full calendar year.

Course Offerings and Student Acceleration

Those students who have attended in the extra term, apart from those catching up lost work, have been for the most part accelerators. However, acceleration has often been possible only if the accelerator takes not the courses desired or desirable, but those available. The accelerating student must take what he can get, and frequently falls victim to the law of supply and demand which dictates that courses with insufficient registration may have to be dropped at the last minute even though they were originally scheduled for the extra term and even though faculty members have been assigned to them.

The basic problem here arises from the fact that most students are not potential accelerators. Those who wish to accelerate are for the most part "goal oriented", that is to say students preparing for professional courses such as law or medicine. Many others listed as accelerators are in fact graduate students, who in most Canadian universities are handled on a year-round schedule anyway.

The American universities have therefore tried to arrange courses offering in such a way as to allow a student to attend in all terms, in any two out of three terms, or in any three out of four terms. But, because to do so would be ruinously expensive, they have not attempted to offer all courses in each academic period, a procedure which would be essential if the students were to be able to accelerate freely or to take any term off without thereby losing the opportunity to take a needed or desired course.[7] And even if the offerings were completely equivalent in all three terms, it appears that only a small fraction of the undergraduates would be interested in acceleration: perhaps, indeed, most students need a substantial annual period free of formal study and would be ill-advised to give it up.

Therefore it may be said that the methods of year-round operation tried in the universities visited in the United States have so far provided a means of acceleration with certain limitations, but that to date they have failed to increase significantly the effective capacity of the universities, principally because students for various reasons have refused to attend during the extra period in place of one of the regular periods.

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[6]The expression "extra term" is used here to designate the additional period of instruction introduced somewhere between the months of April and August in order to achieve year-round operation. In some universities this period is called the summer term; in others the spring term.

[7]In this connection it is worth noting that the rather hit-and-miss type of scheduling used in American universities to permit year-round operation would be particularly unsuitable for Canadian universities with their rigid honours courses. In fact, it would appear quite impossible for a Canadian university to offer a full honours programme of the present kind under a year-round system which permitted but did not require acceleration.

It is true that capacities will rise if the pressure for admission becomes so great that students are forced by circumstances to divide themselves into three equal groups. At the moment, however, this division could only be achieved by coercion which the universities, and even more the legislatures, are unwilling to use. It was said that the legislatures would be even more apprehensive of attempting such measures than they would be of raising tax rates.

Course Structure

While none of the universities visited had attempted a full course offering in each term, all had found it necessary to make each term self-contained with separate registration, a separate set of examinations, and courses adjusted to the length of the term. Thus in one four-term system of ten weeks per term there are four periods of registration, four sets of examinations, and courses are of nine weeks' duration, since the final week of each term is reserved for examinations which take place in the regular 75-minute lecture periods.

The extra periods of registration and examinations, besides making the academic year somewhat more hectic and chaotic, have multiplied the numbers of records to be kept, necessitating an increase in administrative officers and personnel and so increasing costs. Moreover, faculty are burdened with extra records; one department chairman, surrounded by "processed" student cards, remarked that he was no longer teaching but considered himself and his two secretaries little more than a very expensive adjunct to the Registrar's Office.

With shorter periods for courses, emphasis on facts and memory-work rather than on thought and investigation is increased especially where examinations are given in regular lecture periods during the final week of term. Since the "turn-around" period between examinations and registration is often brief, and examination results must sometimes be in within twenty-four hours of the time of writing, faculty tends to fall back on "objective" tests. The short term also makes the essay and term paper difficult, cuts down on the time for reading in and around a subject, and places increased importance on lectures as means of transmitting knowledge for examination. There were also complaints that students did not assimilate material in the short period, and that in laboratory courses, for instance, the student was only beginning to know what he was doing when the course was ended. The tendency seems to have been to fragment knowledge into smaller parcels for instruction, study and examination. This has caused considerable dislocation even in the American universities where under the old system the semesters were self-contained anyway, and two sets of examinations and two periods of registration were normal. In many Canadian Universities, where most courses run through two terms, and one registration period and one set of examinations per annum are customary, the dislocation would be more serious.

The increase in periods of registration and examination also makes it necessary to advise students about course selection more often during the year. This too is an additional burden on faculty, particularly on heads of departments. The burden is the more onerous, since the nature of the system makes it difficult to plan courses far in advance, particularly if the student is accelerating during the extra period or is trying to substitute that period for one of the regular ones.

Some universities have tried to meet the problem by increasing the personnel in the guidance office, but this has had some success only where those personnel were academics, or very closely in sympathy with academic problems.

Psychological Implications and the Learning Process

Statements were frequently made that under year-round operation the shorter terms, the greater number and frequency of periods of registration and examination and the greater need for constant guidance and counselling increased the sense of pressure throughout the academic year on both students and faculty[8]. Leisure time during term and between certain terms was drastically reduced, and the consequent lack of opportunities for recuperation and recreation produced tensions that were intensified by the general feeling of hurry and the sense that insufficient time was available to do what had to be done. It was also remarked that this tension over a number of successive periods produced fatigue in both students and faculty. This fatigue was not produced by the work done, but by the conditions under which it had to be done, and the frustrating conviction that it could not under those conditions be satisfactory in quantity or quality, matters of interest and pertinence having to be given short shrift in the teach-and-test process toward a degree.

On the other hand, some argued that it was good for students to learn to work under pressure — that was the way life was — and that, provided that the number of instructional hours in a course was not reduced, a reduction in the total time taken for the course would not diminish its quality and value. This is a debate in which it may not be possible to reach a simple conclusion, applicable in all cases. In academic work, pressure may come from shortness of time, or it may come from the discipline itself and from the problem under investigation. The pressures from the discipline are the demands for thoroughness of investigation, for precision and exactitude, for logical and coherent presentation. The pressure of the subject matter is related to the difficulty of mastering the material completely so that, even if some of the problems it presents remain unsolvable, they are at least recognized and can be stated. These are legitimate academic pressures and any genuine academic study will bring them to bear on the student. They also relate to the pressure of time. At any level the research scholar knows that he has only an inadequate portion of an uncertain life span in which to do his work. He also knows, however, that the ultimate test of his work will not be its quantity but its quality. In training the student, the task of first importance is to make him aware of the pressures of the discipline and the material involved in his study. If that is done, the student himself will recognize the pressure of time. For that matter, every time a student writes an examination or meets an essay deadline, he is learning to work under pressure. Yet the amount of work to be done and the time allotted to the task must bear some reasonable relationship one to the other.

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[8]The Committee read and heard many expressions of opinion about acceleration, the kinds of people who choose to accelerate, the effects of acceleration or students, and so on. We realize that the subjective impressions of faculty, while of much value — considering they are highly educated, professional people — are not the equivalent of conclusions arrived at after careful empirical research by professional psychologists. Unfortunately, we were unable to find many conclusive research reports from psychological investigation upon which to base recommendations about year-round study.

When a teacher knows that the demands of a course simply cannot be met in the time allotted, the argument that the student is learning to work under pressure will strike him as irresponsible nonsense. And the bright student, knowing that his work is superficial and shoddy, will question the integrity of those responsible for his education.

As to the argument that, provided the number of instructional hours is not reduced, a reduction in the total time taken for a course will not diminish its quality and value, a statement from a committee established to evaluate the trimester system in a large American university, where it has been in use several years, is pertinent:

> In the decision to go to year-round operation and the trimester system there seems to have been at work a misconception that is fatal to a quality education which is designed to produce mature, thoughtful, secure and knowledgeable individuals. This misconception equates education with an accumulation of hours of credit, with an hour of credit dependent only on spending 60 minutes in a classroom. Total calendar time spent in taking a course is equally or more important than scheduled class minutes. The larger the fraction of total time scheduled into class work or other organized activity, the smaller the portion of the time that is available for crucial independent work. Ideally, if the calendar time is shortened the number of class minutes should be reduced[9].

If the argument is valid, it means that the calendar time of a course can only be reduced if:

(a) the demands made by the course for independent study are reduced, or

(b) the instructional hours per course are reduced, or

(c) the number of courses per term is reduced.

In a reputable university the first alternative is not likely to be considered, since the demands for independent study will have been set by the requirements made by the discipline itself for adequate training.

As to alternative (b), the greater the demands that a course makes for independent study, the more drastic the reduction of lecture-hours will be if the calendar term is reduced in length. In a course that demanded ten study hours a week, a reduction of even two weeks would mean in theory that twenty lecture-hours would have to be given over to time for study. In Canada, where many courses run through approximately twenty-five weeks, the fitting of these into, say, fifteen-week self-contained terms would mean a severe loss of study-hours even if lectures were obliterated altogether. It may be argued, of course, that some students don't do much independent study anyway, and might better be in lectures. But good students do make use of that time, and a university that tries to devise a system to regiment the weakest element in its population to the detriment of the strongest is surely in error.

A sounder way of preserving study time per course in a shortened calendar period seems to be a reduction in the number of courses taken per term, since the omission of one course may mean an extra ten hours a week that can be given to another. There are valid academic arguments for fewer courses per term, particularly in certain disciplines. However, in some disciplines it is argued

[9]Florida State University, *Report of Senate Ad Hoc Committee on Evaluation of Trimester Operation*, 1964.

that, even if the ratio of study-hours to a course is maintained in the shorter period by reducing the number of courses, a student is less well able to assimilate material in a ten-week period, for instance, than in a twelve-week period.

In academic work, it is not easy to find short cuts or to save time, and the attempt to do so may well mean that the quality of work suffers. The methods of year-round operation in most of the universities visited, by shortening the periods in which course work must be completed and tested, have been to that extent attempts to save time.

Implications for Faculty

The necessity of providing courses in the extra term has led to certain complications in arrangements between the university and its faculty. Some faculty are on nine-month contracts and are therefore free agents during the extra term. Others, a lesser but growing number, are on twelve-month contracts, and can be required by the university to teach or to do "research" during the extra term. The salary of the man on a twelve-month contract is presumably proportionately larger than that of a man of equivalent rank and value on a nine-month contract. Favourable comments from faculty about year-round operation were frequently about the fact that it provided larger salaries: the nine-month man has an opportunity to make considerable extra money (sometimes as high as one third of his regular salary) by teaching the extra term. The twelve-month man is likely to be paid as much as one third more than he would be on a nine-month contract. However, there was some feeling that the extra amount was not as high in proportion to extra work done as it should logically have been. Some universities on the trimester system were aiming at 50 per cent more for the extra term.

Where men are on nine-month contracts, teaching in the extra term is voluntary, and it is reported that, since many faculty are anxious for the extra money, there is no problem in finding numbers of faculty to teach, although there may be a problem in finding the specific men needed for certain courses that it is desirable to offer. This, we heard, was particularly true in the sciences, where the availability of research grants means that men are less tempted by the opportunity to make extra money by teaching. However, younger faculty in particular were often anxious to make extra money, and it may be wondered whether a university that tempts a man to teach all year, rather than to spend part of the year in research, is doing the wisest thing for its faculty, and therefore for itself. The young man, in particular, if he wishes to spend the extra period in research (and "research" here means any activity that will increase his capabilities as scholar and teacher), must forego earning a considerable sum of money, and live for twelve months on a nine-months' salary in order to do things which in the long run will benefit not only himself but also his students and his university.

While some universities had rules to prevent a man teaching more than five terms out of six, or seven terms out of eight, there seemed to be no consistent policy within any university about how much of any given year a man might spend in teaching. This varied from faculty to faculty, and from department to department. The dean of one faculty told us he was struggling to make it a rule that members of his faculty, if they taught in the extra term, should take one

of the other terms off — and this was a story we heard in other places concerning men on both nine-month and twelve-month appointments. On the other hand, some deans and heads of departments did not seem particularly concerned about how many successive terms a faculty man spent in teaching. In one place we heard it said by an administrative officer that a certain percentage of faculty were "just teachers, anyway", with the implication that they might as well teach throughout the year since they weren't good for anything else. This was said without any apparent awareness that such men were not likely to remain good teachers. In some offices there seemed to be the attitude that the only university "work" consists of teaching, or some specific project paid for by a research grant, and that when a man is not engaged in one of these activities, he is, as far as the university is concerned, on holiday. The year-round system, since it reduces by one means or another the numbers of faculty taking such "holidays" in any given year, is therefore said to be making a more "efficient" use of existing faculty. Where this attitude was apparent there seemed to be little realization that most faculty members spend such "holidays" in independent research, in reading, in preparing new courses or bringing old ones up to date, in catching up with what is new in their specific discipline, and in other activities essential to their survival as scholars and teachers. Where the shorter, more hectic sessions of the year-round system have practically obliterated opportunity for such activities during term, a sizeable period of unscheduled and unrestricted time per annum is all the more necessary. Doubtless there are a few "faculty bums", but it is a foolish view that sees a system as justified in penalizing its vast majority of good men because it squeezes more work out of its weakest members. Some of those in charge of such systems seem liable to forget that the great majority of faculty members are honest professionals who have taken up university work because of their very powerful interest in their subjects. Each man wants to study and wants to teach. But he knows that he can only teach well if he continues to study. His life is dominated by his subject, and no other domination is required. When he has a period free from teaching, he tries to do those things which seem to him most likely to improve his capabilities as a scholar and teacher. And this is for the most part a personal matter. The value of what he does is not always something that can be immediately measured, or to which external standards can be applied. It cannot be said too strongly that any system that deprives faculty by any means of a sizeable period of unscheduled time within each year will defeat the purpose for which it was conceived.

It should also be said that many able faculty members have been attracted to university work, and have taken it on in preference to much more remunerative jobs which were open to them, just because it has offered them some free time each year for independent study. A system that deprives them of that time, or fails to regard time so spent as productive and valuable, will lose its attractiveness in favour of jobs that pay larger salaries. This will be even more likely if the inadequacy of time for independent study makes it impossible for a man to meet his own standards as a teacher.

This consideration is of particular concern to Canadian universities. If we are able to compete for able faculty members with institutions in the United States that pay larger salaries, have bigger libraries, and so on, it is because our system, with its long period of unscheduled time, has appealed to the faculty

man who is seriously interested in his own scholarship. This was pointed out to us repeatedly by faculty members in the United States, some of whom also mentioned the attractiveness of courses offered over a protracted period of time, with a single set of examinations per year. Year-round operation is of course possible without depriving faculty of a sizeable period of unscheduled time, provided it is required that members take off from teaching one of the scheduled terms in each year, but this means a large increase in faculty. Whether year-round operation is possible without shortening calendar time for courses and multiplying the periods of examination is a more difficult problem.

Implications for Students

Some of the implications for undergraduates of year-round systems of education have already been noticed in this report. They themselves appear to have mixed opinions about it, many of which are reported in some of the works on year-round operation. Some, and particularly those who have a definite professional goal in mind, seem glad to have the opportunity to accelerate through their undergraduate programme. Some say that the courses in the extra term are inferior to those in the regular terms; others have found the extra term courses more satisfactory because numbers in them have been small. A number have been irritated by the impossibility of finding courses they need in the extra term in order to accelerate. Some dislike the shorter regular terms and frequent examinations necessitated by the year-round system, complaining of rush, pressure, fatigue, and so on.

At one university where the trimester system seems to have been particularly unsuccessful, the undergraduates have been almost unanimous in condemning it, and there too the faculty commented most frequently that it penalized the good student by giving him little time for rewarding academic work. But this comment was also made at other places by faculty members who saw the year-round system in university education as contributing to a mass-production of mediocrity. One consequence has been to make the more or less haphazard, "string of beads" type of programme more frequent.

On the other hand, there were some faculty and a good many deans and administrative officers who argued that good students benefited under the system, and that the work of the students in general improved under it. Others would say that the improvement shown in marks and grades was the result of other factors: higher entrance standards as a result of greater pressure for admission, knowledge broken into smaller pieces and tested more frequently with less searching examinations. But those on the other side claimed that the shorter term forced the student to keep up with his work, that he had no time to loaf through part of a term, that his sins caught up with him more frequently and could be penalized by failure at an earlier date than under the previous system. It was not easy to get a clear and coherent picture, and one supposes that, since grades and marks are only the test of the student within the system and not of the system itself, it will not be possible for a good many years to judge the true academic merits of these early programmes of year-round education.

One of the more easily observable consequences has been the breaking down of the customary division of the student body into "years". The term is really the basic calendar unit now, although people still involuntarily think in "years" so that they will say that the term system means that students get "out of phase"

when some accelerate and others do not. This shuffling action, along with the shorter, more hectic term, has tended to upset the old patterns of student extra-curricular activities or "co-curricular" activities, as they are sometimes called. There was much complaint about this at the one university where the students seemed most vocal. At other places some of the faculty deplored this trend, while others seemed to feel that the new pattern taking shape was an improvement. However it was not easy to discover just what the trend and the new pattern were. It appears that major sports activities such as varsity football have been protected from disruption, and that fraternities have continued to flourish. Some claim that such things as the student newspaper and the student dramatic society and student government have suffered from the disruptive effects of the shorter term and the greater pressure on the students' time. Others, however, say that the general effect has been to make the students more discriminating in their choice of such activities; a student is inclined to join fewer societies, to contribute more to them, and to get more out of them.

Some faculty members regret the fact that the breaking down of the year divisions makes it less easy for students in a course to think of themselves as a class, and less easy for the faculty to get to know them as a class. This is, of course, accentuated by the shorter term which, the same faculty members say, makes it difficult to get to know the students individually. In the opinion of these men, the system has had the unhappy effect of contributing to the student's feeling of loneliness, anonymity and insecurity within the university. Student organizations can, of course, help the student to overcome these feelings, but if, as some claim, these are being reduced in number, and fewer students are joining those that remain, their effectiveness is being reduced. At some places there has been an attempt to give students a sense of belonging by making each residence a university center for its inhabitants, with dining-room, library, recreational facilities and faculty offices and apartments. It should be said, of course, that most of the universities visited were very large, and that the student's sense of anonymity might be blamed on the size of the institution rather than on the year-round system. However, it may be that the year-round system has made less effective some of the means for helping the student to identify with the university. At one place where the President of the University was scheduled to speak to a meeting of the "junior year", the meeting had to be cancelled because so few turned out. Apparently the lack of numbers was caused by student ignorance about who was in the "junior year".

The universities have had little success in getting non-accelerating students, or students who were not making up lost subjects, to attend in the extra term in preference to one of the "regular" terms, and for the most part freshmen have refused to enter in any term except the autumn one, although at one university a few hundred freshmen over the past two years have responded to pressure and entered in the summer term when they were told that all the places for the autumn term were taken by students whose entrance qualifications were higher than theirs. However, when faced with this pressure, students usually first try to find some other university, and it is for the most part those who fail to do that who return and enter in the summer term.

The reluctance of the students to attend in the summer term has various causes. A basic one, of course, is that they are used to a pattern of school life

that gives them the summer off. Moreover, society itself has long been adjusted to a pattern of work and holiday which reflects the rhythm of the seasons. There are some signs that with air-conditioning, rapid means of travel, a growing interest in skiing, and increasing affluence, this pattern is changing, and it is at least arguable that in the long-run it may change altogether. But at present one suspects that the vast majority of those who work for a living take their holidays in the summer if they can, and one can hardly suggest that, the climate of most of this continent being what it is, it is unwise for them to do so. Those advocates of year-round operation who seem to assume that all this will change rapidly may be over-sanguine, and are perhaps being tempted to subscribe to the proposition that the tail can wag the dog.

A great many students, and this is particularly true in Canada, use the summer as a time to make money to pay for their university training. At some places in the United States seasonal employment seems to be more easily available during other periods (winter work in California and Florida, for instance), and apparently a larger proportion of the students in the United States than in Canada have parents who are sufficiently wealthy to pay the cost of university and who are prepared to do so. However, a significant number of students in the United States do work in the summer in order to pay their way in university. These students cannot attend in the summer term, and the wealthy ones do not want to. Attempts to get students to take interest-free loans have had only limited success; few students have accepted them even when it was pointed out that by accelerating through the summer terms instead of working they could achieve their degrees and be gainfully employed a year or more earlier than if they followed the regular programme. The very students who need these loans come from modest homes and are frightened by taking on a debt of the amount involved, and this reluctance is shared by their parents who may even forbid them to do so. Moreover, when loans are accepted, such students are likely to feel an anxiety about their university career that is not mitigated by the accelerated programme, and may jeopardize their chances of success in it.

Therefore, to date, there has been little headway in breaking the pattern of "work in the summer, study through the winter" for that class of students who have been accustomed to pay for their university education in that way. The pattern would be even more difficult to break in Canada, where a greater number of students follow it, where the summer break has been longer and therefore more rewarding financially, and where seasonal employment is much more widely available in summer than at any other time. There are also still a significant number of parents, although not so many now as twenty years ago, who argue that this summer employment is a good thing, that it gets the student's head out of dusty books and the impractical realms of theory, and teaches him about important things like life and labour and money. There are others who argue that the student's university years should be solely devoted to study, with some holidays for recreation and travel. But the point is not whether the pattern is a good thing or a bad thing; it is a fact of life at the present, and one that will have to be seriously considered in attempting to devise any scheme of year-round operation for a Canadian university.

There were some faculty members who questioned the value of acceleration itself, and particularly for the good student who they feel is being penalized in

restricted choice of courses, lack of time for thorough study and for acquiring sound habits of thought and scholarship, and by briefer and less frequent personal contact with faculty. And they ask whether the labour and professional market is really in such urgent need of men that it is worth depriving their best prospects of the best education in order to feed them into it sooner. About the urgency of society's need for trained personnel this committee does not feel qualified to speak. However, it is sceptical about the qualifications of some of the advocates of acceleration to argue that need, and it is at least dubious about any system that encourages those students who may get the most out of a university, and contribute the most to it, to spend the least time in it.

And finally there are those who wonder whether the year-round system, in changing the character of the university, in making its pace more hectic, its education more of a process than a means of discovery, is not depriving young men and women of an experience of great value that has been theirs in the past, and might perhaps still be made possible for them in an affluent society: an opportunity to pause and find themselves before they are taken over by the job and the family and the demands of the economy and the society, a time of unforced growth in which they can gather the strength on which their future sanity will depend.

Financial Implications

None of the universities visited in the United States claimed to have made a significant study of the costs of year-round operation as such and, although some thought that economies were being effected, no one was prepared to say whether under the new system it was more or less costly to accomplish what they were accomplishing than it would have been under the old with some greater expansion of buildings. Most of those who were not in a position to speak with any authority felt that the system had been expensive so far. While a few administrators were sanguine about savings in the future when enrolment in the extra term increased, others — and we found these at most of the universities visited — said that the system had been very expensive to date, and were not particularly hopeful about its providing any economies in the foreseeable future, no matter how well it might work to provide increased capacity and the opportunity for acceleration. The various things said are perhaps best reported by summarizing the statements of a man who has been closely associated with the change-over at one of the great universities where the system seems to be working most effectively.

He said first that the principal reason for their change to year-round system was not to provide increased capacity at lesser cost, but to provide the educational service of acceleration at any cost. He added that if we in Canada were contemplating the system as a means of saving money, we were in for a shocking surprise. To date at his university it had been very expensive, although he admitted that some of the costs of the system were difficult to separate from the price that university expansion would have cost anyway, and from the costs involved in what has obviously been a successful plan to enhance the quality of the University. These costs to date have resulted from the enormous expense of the changeover itself, the increased salaries to hold and to attract able faculty, the reduction of faculty teaching hours for the same purpose, the increased expense in personnel and offices of administering a system that requires several registra-

tions and periods of examination per year, the high salaries paid to faculty for teaching in the extra term where classes are smaller, the addition of laboratories and classrooms and of office space for faculty, the enlargement of the library, and the increase in guidance personnel. While it was not discussed directly, it also appeared to be true that the increase in numbers of high-priced administrative officers was in part a result of a more complex system of university operation.

These are the money costs. There are also the costs of wear and tear on the faculty during the period of changeover, of the proliferation of committees, and of the increased burden of examinations, records and guidance for faculty, particularly for heads of departments.

This is all expensive, and it is particularly expensive when students do not attend in any numbers in the extra term, for apart from making that term costly to operate, it means that the system is not enlarging the annual enrolment of the university to any significant extent. Students still pack the autumn term, and to only a slightly lesser degree the other regular term, or terms. By comparison, the extra term remains lightly enrolled, and for the most part with accelerators or students making up lost work. Thus, for practical purposes, the effective capacity of the university is still its capacity in the autumn term.

It may be seriously doubted, then, that the kinds of year-round operation tried in the United States have been effective in increasing a university's capacity except in so far as they have accelerated students, and in that way made places available for other students at an earlier date. Moreover the expense has been great and looks as if it will continue to be so. It is legitimate to ask, then, whether in matters of cost and capacity alone, capacity may not be more effectively and less expensively enlarged merely by adding to the physical plant, formidable as the initial cost of doing so may seem at the present. Experience in the United States shows that the savings on plant are minimal while the costs of faculty and other personnel appear to increase above the proportion of the increase in capacity. It is true that these universities are geared to take in a much larger number of students, if and when students are prepared to use their potentialities for increased enrolment to their full capacity. But in the meantime the system seems inefficient and costly as far as increasing capacity is concerned. Canadian universities would be well-advised to take a long, hard look at this problem, for it may be that the most efficient and least expensive way to increase their capacities would be to enlarge their physical plants, spreading the capital cost over several generations. To initiate a system now that for many years may be very costly before it even becomes effective, let alone economical, might be a very impractical way of meeting the problem of increased numbers. If acceleration is important, there are effective ways of providing it that are less expensive than attempting to establish a full-year-round system would be.

Most Canadian universities operate a summer school, and evening classes in extension. This, plus the fact that their graduate students are working through the year, means that in efficient utilization of the physical plant they may be at least as effectively year-round operations as those American universities we visited are at present. This, at any rate, was the opinion of one administrative officer to whom we talked. He pointed out that, of the twelve months in the year,

one at least must be set aside for repairs and maintenance to the physical plant, with at least another week for the Christmas break. Thus the maximum time over which buildings can be used is just short of eleven months.

At one of the universities we visited, what had been a flourishing summer school for teachers had had to be practically abandoned in favour of establishing an extra term for regular students. At other places the traditional summer school was being maintained side by side with the extra session. In still others it had been fitted into the regular session by breaking that session into two halves, one of which was for regular students, the other for teachers and regular students. Regular students could also, of course, attend both halves and in this way get the equivalent of a full term's work. However, this double session was too long to fit most teachers' holidays.

Graduate students at the American universities we visited appear to take a good many more courses than do graduate students in Canadian universities. Many of these courses seem to be the same as those taken by senior division undergraduates. Making some of these courses available in the extra term has presumably, therefore, been of some benefit to people doing graduate work. It is difficult to see how this arrangement would be of much value to graduate students in Canada, who for the most part get their course work done in the autumn and winter, and use the spring and summer for research and the writing of their dissertations or theses in consultations with their supervisors. One of the odd things we heard at several universities in the United States was that faculty members, who for courses given in the regular terms were supplied with graduate assistants and demonstrators, could not get funds for such assistance if they gave the same courses during the extra term. Actually the differences between graduate programmes in the two countries make it difficult to learn much from the American experience about the probable effects of year-round operation on graduate work in Canada.

Implications for Administrations

One further point remains to be made about our experience in the United States. It can be said that the more complex the operation of the University comes to be, the more the "system" tends to become an end in itself. As universities are operated on this continent, increasing complexity is, of course, one of the consequences of enlarged numbers. However, year-round operation as it has been attempted in the various universities we visited appears to add to the complexity, and there is an increasing necessity for all other considerations to have to give way to the prime consideration of fitting into the system. We heard at one place that one of the academic departments had been having difficulty, and had only just recently managed to "plug into the system". This increasing importance of the system means, of course, that in the academic community the administrative machinery that has been created to serve the community comes to dominate it in a multitude of ways, many of which are not suited to its best interests. Obviously this is not the result of a machiavellian policy on the part of administrators greedy for power, but simply the way things go when the operation of an institution becomes more complicated. However, in the offices of some administrators the actual business of academic work seemed very far away, and one had the impression that the university might have been any kind

of business geared to mass-production. These were well-meaning men, anxious to improve faculty salaries, enhance the prestige of the university, and in general serve the system to the best of their ability. Yet, as they talked, one realized what a complicated and ponderous superstructure we have created in order to bring students into contact with faculty and to provide reasonable conditions for academic work. It was also apparent that these basic requirements of the academic community were in danger of being forgotten, or misunderstood, or adjusted to the demands of the system. That these trends are already apparent in Canadian universities is well known. And it is likely that, with increasing size and numbers, they are inevitable; the point here is that the systems of year-round operation attempted in the United States have done much to accelerate them. In contemplating year-round operation this is a factor to be considered, for it is possible that if academic considerations were put first in planning the change, and if they were steadily kept to the forefront throughout, the system finally established might be essentially an academic one, and not one subservient to an administrative machinery that dominates administrators as well as faculty.

Summary

The potential danger of any system of year-round operation is that it may exacerbate the ills of the present system beyond hope of cure. Unless rigorous measures are taken, it seems likely that the tendency of the extended year would be to increase teaching loads and reduce time for research. The arrangement of term-length courses in a year of three or four terms would tend toward the further fragmenting of the university's offerings, toward an increase in the number of lecture hours per day and week, toward unplanned, patchwork courses where students would pick up what was available in any given term. There would almost certainly have to be examinations at the end of each term, increasing the numbers and frequency of what many consider to be at best a necessary evil. The shorter course time and more frequent examinations, besides increasing pressures on students and faculty, would militate against the process of assimilation and maturation that is held in some disciplines to be necessary to sound learning. There are also the dangers of faculty and student fatigue, and of interference with faculty time for refreshing themselves and their courses. Added to these things is the danger that the machinery of the university will come to dominate its academic life, and, finally, that both savings and increased capacity are doubtful at present.

This is not to say that these evils would necessarily follow upon the adoption of a system of year-round operation, but it is to suggest that, on the American experience so far, they would be a probable result of any year-round operation that was conceived simply as an extension of our present system, and put into operation merely to expand the capacity of our present universities at the lowest possible cost. On the other hand, it is possible that if some system were constructed with academic quality as its first consideration, the new system might serve not only to extend a university education to greater numbers, but also to improve that education itself.

If and when universities in Canada are faced with the need to consider year-round operation, it is likely that each to some extent will have to find its own salvation according to its circumstances and requirements. This committee does

not feel that it can make specific recommendations. The report has already made some general recommendations, and implied others by what it has said about the results of the American experience in comparison with what the committee holds to be the aims and functions of a university. Certainly, any university considering a change should very carefully examine some of the systems tried in the United States, and should consult the opinion of students, faculty at various ranks and in a wide variety of departments, and administrators at different levels in various offices. Few of those we consulted felt they had found the right answer to their problem, and most were frank in admitting that they were groping toward it at considerable cost in time, money and energy. Since there is no reason to believe that our problems would be any easier to solve, or that, starting without the benefit of their experience, we would do the thing better than they, it would be foolish not to try to benefit from that experience. Their aims and hopes, and the ways in which they have tried to implement year-round operation, are publicized in calendars, prospectuses and reports which may be obtained from the individual universities. This report has tried to concentrate on what appears to have happened as a result of their attempts. It presents information which for the most part has not hitherto been available in written form, although it may be had by corresponding with people in the universities, or by visiting them.

One final thing may be said by way of a general recommendation. It became apparent in the systems examined that frequently what suited Department A did not suit Department B, and what Department B liked about the system was loathed by Department A. Yet the system usually imposed unhappy conformity. Thus the best system would be that which allowed departments the maximum possible freedom to do the things they had to do in the ways that were best suited to doing them. Some departments want more lectures, some want fewer; some would like longer periods within the term for reading and research, others are not interested; some can use 75-minute lecture periods, others find them impossible; some welcome the opportunity to accelerate students; others regard it with anxiety; some like a short, compact term, others prefer a long, loose one. These preferences are not whims, but professional opinions by men who know, in so far as such things can be known, what are the best conditions for instruction and for learning in their disciplines. To the extent that it is possible, any university system should attempt to accommodate the various requirements of its different departments, for to provide optimum conditions for instruction and learning for each one of them should be its first aim.

Submitted by the Committee,

Berners W. Jackson, *Chairman*
Grant Huber
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McMaster University.
June 1964.

APPENDIX

An Estimate of the Possible Economies Under a Modified Trimester System of University Operation

The purpose of this appendix is to make an estimate of the maximum economies which could be effected under some system of year-round operation of universities in Canada. We are here concerned with the financial aspects of the question; the academic advantages and disadvantages are considered elsewhere in this Report.

The system considered here is a modified trimester plan rather than a full-scale year-round operation. Under the latter type of plan it would be necessary to offer all, or nearly all, courses in every trimester. Such a system would give rise to acute problems of administration and course planning but, more relevantly in the present context, it would be prohibitively expensive to operate. The reason for the high cost per student under a true year-round system is that, even under the most favourable conditions, enrolment in the summer term has been found, in those universities which have some form of year-round operation, not to exceed 50 per cent of the enrolment in the other terms; in more typical cases the figure is found to be around 30 per cent. And even these results were achieved only by using the pressures and inducements available to the universities concerned to have students register for the summer term.

To give a full range of courses to one-third or one-half of the normal number of students would obviously mean that the average cost per student would be high. This implies, too, that there would be inefficient use of scarce teaching resources because of the small average size of classes. Since a full year-round system would be more expensive in terms of the cost per student than our present two-term system, we will consider in this appendix the cost of operating under a modified trimester system. Under this modified system, only the more junior courses, in which average enrolment tends to be largest, would ordinarily be offered in the summer term. It may possibly be well to emphasize again that the reason for considering such a system is a purely financial one; there is no intention here of implying any judgment concerning the academic merit or otherwise of such a plan of operation.

It is expected, on the basis of the most recent projections, that there will be some 300,000 full-time students in Canadian universities by the early 1970's. With the present two-year system of university operation, this implies that it will be necessary to provide 300,000 university places for these students.

One way in which to reduce the number of places required would be to change from the present standard two-year term system to a three-term or trimester system, the third term being added during the summer period when most regular full-time undergraduate students are currently away from the campus.

If we assume that there would be half as many students during the summer as during the other terms, it would be possible to provide for 300,000 students by having 240,000 in each of the present two terms and 120,000 during the new

third term. The question to be considered here is how the cost of providing a university education for these 300,000 students under the trimester system would compare with that under our present system. It is necessary to consider two types of costs:

(1) Current operating outlays;
(2) Interest and depreciation costs.

Current Operating Costs

Current operating costs per student were about $1,500 a year in 1960-61 and had increased by about $500 in the preceding decade. The upward pressure on costs will almost certainly continue and it is reasonable to expect that, by 1970-71, the figure will be somewhere around $2,000 per student per year on the present basis of operation. With 300,000 students in our universities in that year, this implies a total operating cost of $600 million. To the extent that enrolment exceeds 300,000 (the most recent projection for 1970-71 is 312,000 and past projections have tended to be lower than actual enrolments have turned out to be), this $600 million figure may be too low. On the other hand, if costs per student are less than $2,000 the tendency would be to reduce the actual cost below the estimate. On balance, it seems reasonable to use $600 million as the best single estimate.

We must consider to what extent it would seem possible to reduce this very large figure if a modified trimester system were introduced with enrolment in the third term equal to one-half of that in the other two.

The major item of operating expense is for instructors' salaries. It is assumed that instructors will be paid at the same rate for their efforts during the summer term as during the other terms so that operating economies will not be effected at the expense of instructors. With a smaller enrolment in the summer term, we might expect that the cost of instruction *per student* during the summer term would increase under a trimester system. As against this, however, we have assumed that the more specialized senior courses, in which average enrolment tends to be small, would not be offered in the summer term. This restriction would involve some inconvenience to students, some distortion of programme, and some students, especially in the more senior years, would be precluded from attending in the summer term. However, with the primary emphasis in the summer term placed on offering the more junior courses, it might be possible to avoid an increase in the cost per student of instruction in the summer term compared with the cost in the other terms.

To arrive at a maximum estimate of the economies from the trimester system we shall assume therefore that, despite the smaller attendance in the third term, there is no increase in the costs of instruction per student per term, but rather they remain at the same level as under the present two-term system. This seems the most optimistic assumption which it is reasonable to make with regard to the costs of instruction, costs which account for about 60 per cent of total university operating costs.

The other principal items of operating costs are administration, maintenance, research and scholarships. These costs, taken together, make up about 40 per cent of all operating expenses, or a total of $240 million out of the estimated

$600 million for total operating expenses which we have estimated for 1970-71 if the present system is continued.

It is impossible to determine with any great accuracy the distribution of these expenditures over the university year. From the data available the best estimate appears to be that $90 million should be allocated to each of the two present terms, leaving another $60 million for the summer period Since there is no precise method of allocating these items of expense among the three terms, it is fortunate that even a fairly substantial variation would make little difference to the final result. With the modified trimester system the winter enrolment would be only 80 per cent of what it would be under the present system. Since there are some economies from larger scale operation we might expect that, under the trimester system, expenses during the winter terms would be slightly more than 80 per cent of what they would be under the present type of system or about $75 million per term. The summer enrolment under the trimester system has been estimated at 120,000 compared with 240,000 in the other terms. Again we might expect that with enrolment at only half of the winter figure the variable cost per student would be somewhat higher than in the winter terms. If the variable cost per student were the same during the summer term or during the peak enrolment winter terms, the total expenses in these categories of items for the summer term would be $67½ million; i.e., half-way between the summer figure under the present two-term system and the figure for a 240,000 enrolment under the trimester plan. If, as suggested, we allow for some diseconomies due to the lower summer enrolment, we could estimate the summer term expense at about $70 million. The total for these categories of expense in the three terms under this modified trimester system would then be $220 million compared with $240 million under the present system.

There are two other items of expense under the trimester system which we have not yet considered. The first is the cost of the transition to the trimester system. The experience of universities which have made the change has been that the costs are very substantial. They are, however, non-recurring and since they are also very difficult even to estimate we shall simply mention their existence, but will make no attempt at a quantitative assessment. Other aspects of the transition to a trimester system are considered elsewhere in this Report.

The second item arises from the additional aid required for students either because they are accelerating and so have less opportunity for vacation earnings or because they are attending university during the summer when seasonal opportunities for employment tend to be best in Canada. According to the Dominion Bureau of Statistics report on "University Student Expenditure and Income in Canada 1961-62", scholarships covered about 10 per cent of total student expenses in that year. Average expense per student was between $1,250 and $1,300 in that session so that scholarship aid averaged about $125 per student for the two terms. If we assume that scholarship aid would have to be provided at the same rate, a total of $7½ million would be required for this purpose in the summer term. For the reasons given above, and also because student expenses are likely to continue their upward trend in the years between now and 1970, the actual amount required for this purpose is likely to be somewhat greater than this figure of $7½ million but we shall not attempt here to refine this estimate further.

The maximum operating economy, apart from the matter of additional scholarship aid, has already been estimated at $20 million a year. If we reduce this figure by the minimum of $7½ million which would be required for additional financial aid to students, we have a net operating economy of $12½ million or, say $10 to $15 million. In relative terms this is about 2 to 2½ per cent of the expected total annual operating expenses for Canadian universities in 1970-71.

Capital Costs

The cost of providing one student place at present (exclusive of residence accommodation) is approximately $7,000 and we shall assume that the figure would remain at the same level over the next few years. To provide places for 300,000 students would, therefore, require a total capital investment of $2,100 million. We are concerned here with the annual costs associated with such a total capital investment. These costs consist of (1) interest and (2) depreciation charges.

Annual Cost under present two-term system

Interest at 5½ per cent on $2,100 million	$116 million
Depreciation (assuming average life of 70 years for university capital facilities)	30 million
Total annual cost — interest and depreciation	146 million

Annual Cost under Trimester System

We assume, as above, that each of the 240,000 students places which would be required under this system will cost $7,000. This would imply a total capital investment of $1,680 million to provide for these students.

In addition to these capital requirements, there would be additional facilities required for extra staff needs for the summer term, additional offices for administrative staff, research laboratories for professors, etc. (By "additional" here it should be noted that we mean additional to 80 per cent of the capital investment required under the present two-term system.) An analysis of space allocation suggests that approximately two-thirds of the floor area (exclusive of residences) is used directly by students for classes, student activities, meal service, etc., and that about one-third is required for professors' offices and research facilities, administration, etc. We, therefore, assume that these ancillary facilities for the 120,000 summer term students, equivalent to 60,000 two term students, will cost an average of ⅓ of $7,000 per student or a total of $140 million. This figure, together with the $1,680 million calculated above gives a total requirement for capital investment of $1,820 million under the trimester system. The annual cost appropriate to this is:

Interest at 5½ percent on $1,820 million	$100 million
Depreciation (assuming an average life of 70 years for university capital facilities)	26 million
Total annual cost — interest and depreciation	126 million

It thus appears that, with respect to interest and depreciation charges, there would be an annual saving under the trimester system of some $20 million. (If, for example, we had taken an interest rate of 6 per cent and an average life for university capital of 35 years, the annual saving under the trimester system would have been increased to $25 million. It is evident that even substantial changes in our assumptions do not make a great difference to the estimate of the economies on interest and depreciation account under the trimester system.)

Summary Comparison of Average Costs per Student

The estimates which have been derived above are aggregates for the projected 300,000 students. In the following table these estimates are converted from an aggregate to a per student basis and, in addition, the comparison on combined operating and interest and depreciation account is shown in a single statement.

	Present System	*Modified Trimester*	*Saving under Trimester*
		(Dollars per student)	
Operating Costs			
(1) Instruction	$1,200	$1,200	$0
(2) Other Operating	800	733	67
(3) Additional student aid required under trimester	—	27	—27
Total Operating Cost	$2,000	$1,960	$40
Interest and Depreciation			
(1) Interest	390	335	55
(2) Depreciation	100	85	15
Total Interest and Depreciation	$490	$420	$70
Total Cost per student	$2,490	$2,380	$110

The annual saving per student on current operating expenses plus that on interest and depreciation account is seen to be an estimated $110 a year, or in relative terms, some 4½ per cent of the total cost per student of providing a year's university education. In aggregate terms the estimated economy from the modified trimester system amounts to an estimated $32 million dollars, on total costs of over $700 million.

The experience of American universities which have gone on the trimester system suggests that, in fact, no economies in current operating expenses are likely to be realized. This tends to confirm the statement above that the assumptions made in this appendix overstate the economies to be realized from the trimester system. If we follow out the implications of this statement we would be left with only the economies on interest and depreciation account. These are, again on the assumptions most favourable to the trimester system, less than 3 per cent of all costs.

Conclusion

This appendix has considered only the financial aspects of the question of a trimester system. It seems clear that the financial advantages are, even on the assumptions most favourable to the trimester system, very small in relation to the total annual costs of university operation. It appears, therefore, that the decision concerning the introduction of such a system should be based on the relative academic merits of the two systems, rather than on any very likely cost advantages which either system has over the other one.

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